ORIGINALE ARCHIVIO

5

CARLO GAVAZZI SPACE SpA

RELAZIONE DI RIUNIONE / VISITA
MINUTES OF MEETING / VISIT

N° **AMSTCS-MI-CGS-027**

FOGLIO *SHEET* 1 DI *OF* 2 ANNEX Annex1(1 pag) Annex2(32 pag)

DATA – *DATE*	LOCALITA' – *LOCATION*	COMMESSA – *JOB*	RIF. - *REF.*
17/10/2008	CERN	AMS CD 2011 I	2011 I

IMPIANTO *PROJECT*

DESCRIZIONE *DESCRIPTION*: ***USS Axial Groove Heat Pipes final Installation***

LOCALITA' *LOCATION*: ***CERN***

CLIENTE - *CUSTOMER*: ASI

ORDINE - CONTRACT: I/008/08/0

REDATTO – *WRITTEN BY*: M.Olivier

SCOPO RIUNIONE *PURPOSE OF MEETING*

USS Axial Groove Heat Pipes final Installation
CAB Axial Groove Heat Pipes delivery @ CERN

LISTA DI DISTRIBUZIONE *DISTRIBUTION LIST*
- M.Olivier (CGS)
- E. Marchetti (ASI)
- E. Russo (ASI)
- F. FACCHINI
- M. ZAPPINO

PRESENTI - *ATTENDED BY*

NOMI - *NAMES*	POSIZIONE - *POSITION*
Joe Burger	AMS TCS Responsible (AMS coll.)
C. Vettore	AMS TCS System engineer (CGS)
A. Dell'Acqua	Operations Head (CGS)
L.Cremonesi	AMS TCS PA (CGS)
Corrado Gargiulo	AMS PA\QA delegate (AMS coll.)

PUNTI *ITEMS*	ARGOMENTI DISCUSSI – DESCRIPTION OF DISCUSSION	AZIONE A CURA [1] *ACTION BY* [1]
1.	The USS Axial Groove Heat Pipes and CAB AGHP have been transported to CERN according to transport document of (annex 1). Final installation for USS AGHP took place on October 16th according to the AMS Task Sheet (ATS) # TCS080806-22 .(annex2). Details of installation can be found in the annex 2.	

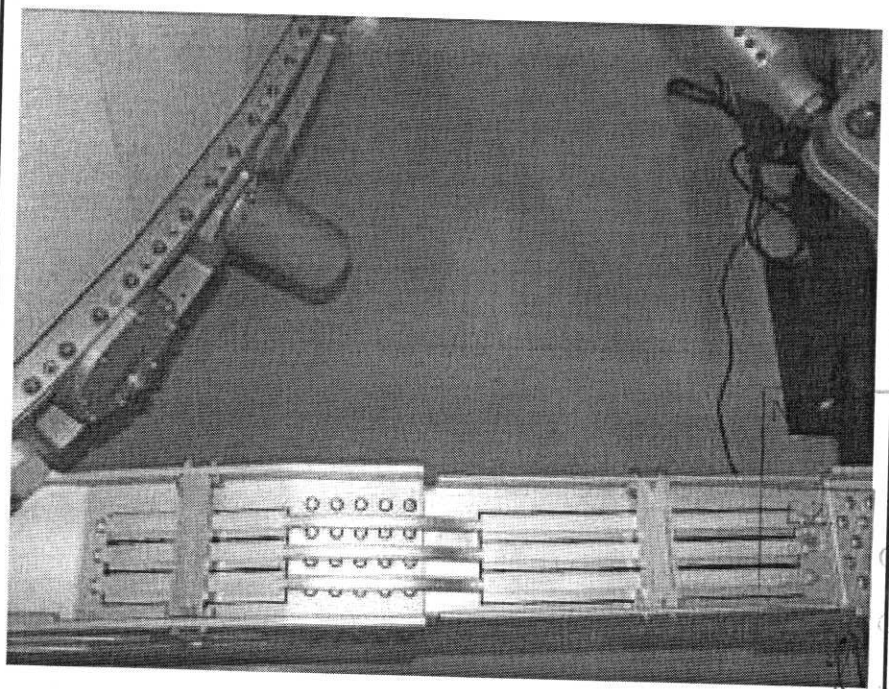


Fig. 1 - USS He at Pipes final installation

RICEVUTO IL
25 NOV. 2008
Commessa 2011 I
Ufficio
Altro
Data copia a: VEDI elenco.

1) INDICARE IL NOMINATIVO RESPONSABILE DELL'AZIONE E DATA DI COMPLETAMENTO
1) *ACTUAL PERSON RESPONSIBLE FOR THE ACTION AND COMPLETION DATE SHALL BE SHOWN*

CARLO GAVAZZI SPACE SpA	**RELAZIONE DI RIUNIONE / VISITA** ***MINUTES OF MEETING / VISIT***	N° **AMSTCS-MI-CGS-027** FOGLIO *SHEET* **2** DI OF **2** ANNEX Annex1(1 pag) Annex2(32 pag)

DATA – *DATE*	LOCALITA' – *LOCATION*	COMMESSA – *JOB*	RIF. - *REF.*
17/10/2008	**CERN**	**AMS CD 2011 I**	**2011 I**

PUNTI *ITEMS*	**ARGOMENTI DISCUSSI – DESCRIPTION OF DISCUSSION**	**AZIONE A CURA** [1] *ACTION BY* [1]
2	The USS Heat Pipes have been successfully inspected and accepted by AMS Collaboration representatives with respect to the applicable technical requirements. CGS shall provide Mr. Burger with USS Heat Pipes Acceptance Data Packages.	AI#1 20/10/2008 - CGS to deliver USS Heat Pipes ADP
3	The risk of custody for the delivered (CAB AGHP) and installed (USS AGHP) H/W is transferred from CGS to the AMS Collaboration. Being the installed H/W a CGS/ASI property till ASI contract closure, any activity that required usage/modification of the installed H/W or could result in possible risk for the H/W shall be executed (in any case) only after CGS authorization.	

1) INDICARE IL NOMINATIVO RESPONSABILE DELL'AZIONE E DATA DI COMPLETAMENTO
1) *ACTUAL PERSON RESPONSIBLE FOR THE ACTION AND COMPLETION DATE SHALL BE SHOWN*

ANNEX 1 TO AMSTCS-171-CGS-027

CARLO GAVAZZI SPACE SpA

Via Gallarate, 150 - 20151 Milano (IT) - Cap. Soc. sottoscritto € 5.400.000 - Cap. Soc. versato € 3.150.000
R.E.A. 1254780 Reg. Imp. di Milano - C.F. / P.I. IT08921330158
Tel.: +39 02 38048.1 - Fax: Gen. +39 02 3086 458 - Amm. +39 02 38048.207 - e-mail: cgs@cgspace.it - http: www.cgspace.it

CARLO GAVAZZ

DOCUMENTO DI TRASPORTO N.	DEL	DESTINATARIO
432	13/10/2008	CERN FRANCE (PH Department - AMS Collaboration) Site de PREVESSIN F-01631 CERN CEDEX - FRANCE (Recep.Prevessin, Claude Macari FI/LS +41 22 7675657)
NS. COMMESSE N.		ALL'ATTENZIONE DI
2011 I		Joseph Burger, PH Département 00 41 22 767 5914, mobile 00 41 76 487 0241 (75914 and 160241 inside CERN)
DESTINAZIONE MERCE		Corrado Gargiulo 00 41 22 767 , (CERN AMS Responsible) mobile 00 41 76 487 0322 (79656, 1620322 inside CERN)
As above mentioned		
VS. ORDINE N.		

PC	QUANTITÀ	DESCRIZIONE	CODICE MODELLO
1	2	40-AMS02 CAB AGHP , AMS 02 CAB axial grove heat pipes	
2	3	40-AMS02 USS AGHP , AMS 02 USS axial grove heat pipes	
		Notes : - Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14.000) - Parts shipped according to 'ASI Contract 1/008/08/0' - Parts moved by our Mr. A.Dell'Acqua - Parts contained in n°1 wooden boxes, gross weight 8Kg./ea (total 16Kg)	

Olivier /ep

CAUSALE DEL TRASPORTO

PARTS SUPPLIED ACCORDING TO 'ASI Contract 1/008/08/0'

ASPETTO ESTERIORE DEI BENI	N. COLLI	PESO KG.	PORTO
wooden boxes (see note)	1	16,0 Kg.	FRANCO

TRASPORTO A MEZZO: MITTENTE ☐ XX DESTINATARIO ☐ VETTORE ☐

INIZIO TRASPORTO O CONSEGNA	DATA	ORA	FIRMA DEL CONDUCENTE
	DATA	ORA	FIRMA
Our Mr. A.Dell'Acqua	DATA 14/10/08	ORA 12:30	FIRMA
	DATA	ORA	FIRMA

DOCUMENTO di TRASPORTO
(D.P.R. n. 472 del 14/08/96)

FIRMA DEL DESTINATARIO

1° Bianca per destinatario – 2° Verde per vettore – 3° Gialla per mittente

ANNEX 2 TO
AMSTCS-MI-CQS-027
26+5 PAGES

1. PROJECT CODE	2. JPIC CODE	AMS-02 TASK SHEET (ATS)
SA-AMS	AMS	

3. TYPE				4. ATS NO.	5. PAGE
A	CONFIGURATION CHANGE	☒		TCS080806-22	1 OF 26
	PERMANENT ☒ TEMPORARY	☐	6. MOD SHEET(S) NUMBER(S)		
B	NONCONFIGURATION CHANGE	☐	MOD 1		

10. PART NAME	11. Sub Detector Name	12. SERIAL/LOT NO.
AMS02 USS parts		

14. APPLICABLE DOCUMENTS

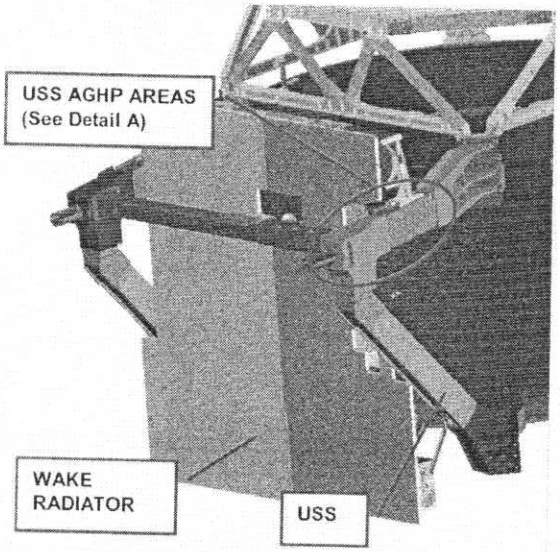
18. ATS TITLE
USS AGHP INTEGRATION ONTO AMS02

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/IV

SCOPE

The purpose of the present document is to provide information and guidelines for the USS AGHP integration onto the AMS02, in the position shown in the following Figures
The activity shall be split in two different phases as:

- AGHP Fit Check onto the USS
- AGHP gluing onto the USS **(with adhesive ECCOBOND 285 Catalyst 23LV)**



24. ORIGINATOR	DATE	25. FINAL ACCEPTANCE STAMP AND DATE
G. Duchini/C.Vettore		

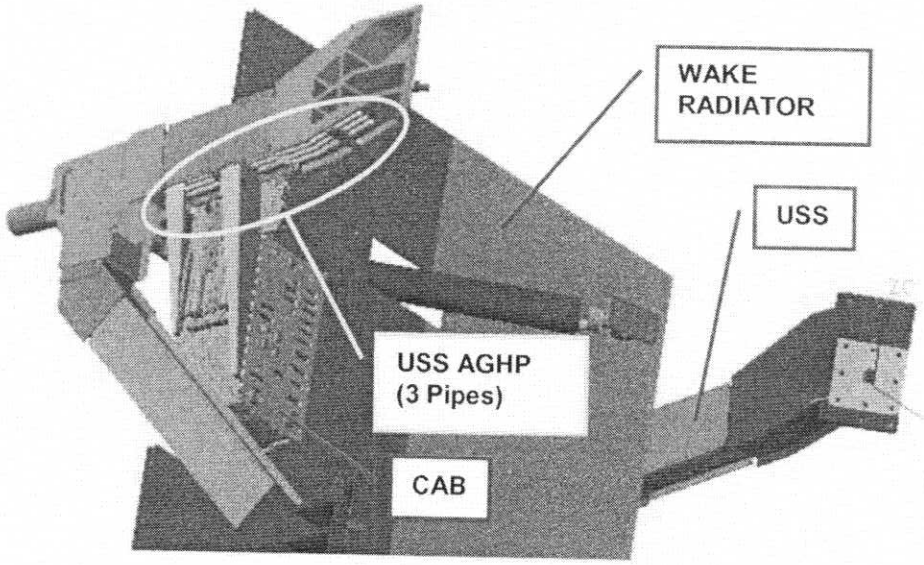
APPROVALS *(Printed or Typed and Signed)*

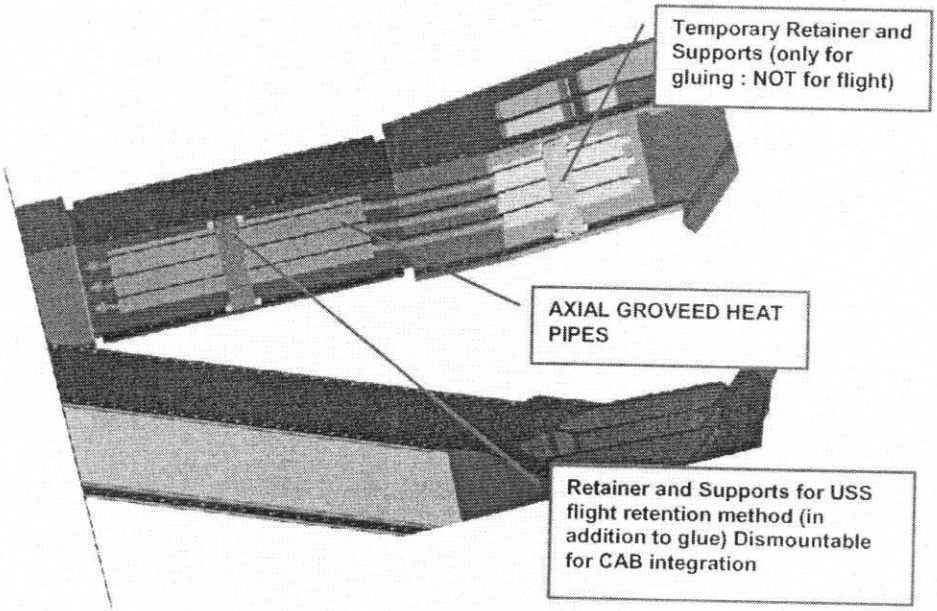
26. PROJECT ENGINEER	DATE	27. QUALITY ENGINEER	DATE
C.Vettore		C. GARGIULO	
28.		29.	
30.		31.	

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.	TCS080806-22
6. MOD NO.	MOD1

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV





AMS-02 TASK SHEET (ATS) CONTINUATION PAGE	4. ATS NO.	TCS080806-22
	6. MOD NO.	MOD 1

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV

APPLICABLE DOCUMENTS

The following documents in the latest applicable issue form a part of this plan to the extent specified herein:

AD	Document ID	Issue /Rev	Title
1	22-AMS02TCS-000.10.00	/	USS Heat Pipe Temporary Retainer
2	48-AMS02TCS-000.02.00	/	USS Heat Pipe Retainer
3	48-AMS02TCS-000.03.00	/	Heat Pipe Bottom Support 1
4	48-AMS02TCS-000.04.00	/	Heat Pipe Bottom Support 2
5	IEF001-D-093	2	HEAT PIPE IEA 001/08 IEA 002/08
6	IEF001-D-094	3	HEAT PIPE IEA 003/08
7	Technical data sheet	N/A	ECCOBOND 285 – Thermally Conductive , Epoxy Paste Adhesive *by Emerson & Cuming*
8	Technical data sheet	N/A	Standard Catalysts *by Emerson & Cuming*
9	EC180655	N/A	ECCOBOND 285 Material Safety Data Sheet
10	EC600441	May 22nd 2008	CATALYST 23LV Material Safety Data Sheet
11	Material Code : 04546	N/A	ECCOBOND 285 with 23LV Catalyst – Material Definition Properties
12	AMSTCS-PR-CGS-019	1/	Eccobond 285 Preparation procedure
13	48-AMS02TCS-000.00.00	/	CAB TCS Installation Assy (sheet 1)
14	NASM8846	-	Insert, Screw-Thread Helical Coil
15	MSFC-STD-486B	-	Standard, Threaded Fasteners, Torque Limit For

STANDARD AND SPECIAL TOOL

For the hardware installation standard tools shall be used.
Where, the use of standard tool in not possible, special tools may be employed.
Each special tool has to be identified with its Drawing Number marked, in indelible way, on the same tool. All the tools have to be clean and free from dust and grease.
For the present installation only standard tools are needed

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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV

LOCKING TORQUE MEASUREMENT

Locking Torque is the torque applied on bolts while they are turning and passing through Helicoil or nut.
The following coupling configuration shall be considered in the present integration:

- **Screw and Self Locking Helicoil**
  - Screw NAS1954C3 and Helicoil MS21209F4-10
  - Screw NAS1954C6 and Helicoil MS21209F4-10
  - Screw NAS1954C9 and Helicoil MS51830CA202L
  - Screw NAS1352C08-10 and Helicoil MS21209C0820.

The expected Locking Torque value, relative to all the used screws, are reported in the following Table
These values are an output from specification NASM8846 (AD[14])

SCREW TYPE	SCREW SIZE [mm]	HELICOIL TYPE	MIN. LOCKING TORQUE [Nm]	MAX. LOCKING TORQUE [Nm]
NAS1954C3	6.35	MS21209F4-10	0.39	3.38
NAS1954C6	6.35	MS21209F4-10	0.39	3.38
NAS1954C9	6.35	MS51830CA202L	0.39	3.38
NAS1352C08-10	4.16	MS21209C0820	0.17	1.01

Table 1

Since it is a continuous torque, it is necessary to measure it with an analog torque wrench, obtaining the maximum torque applied during this operation.
The Locking Torque value has to be reported in this ATS and added then to the specified Seating Torque

The below Step by Step procedure, have to be followed for all the fittings to be used for the retainers and supports needed for the AGHP installation.

STEP	OPERATION
1	Clean screws, nuts and washers in an Isopropyl Alcohol bath
2	Let screws, nuts and washers dry on a clean towel
3	Perform a screws and washers visual Inspection to check if any non conformance is present
4	Install the part on the AMS02 hardware an screw down, by hand, screws and nuts
5	Measure the Locking Torque and register the value in this ATS

AMS-02 TASK SHEET (ATS) CONTINUATION PAGE	4. ATS NO.	TCS080806-22
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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV

FINAL INSTALLATION TORQUE MEASUREMENT

Final Torque (T) to be applied to each screw is the result of the sum of the Locking Torque (LT) (measured) and the specified Seating Torque (ST).
LT shall be measured using a calibrated torque wrench.
FT shall be applied using a calibrated torque wrench.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

- **SEATING TORQUE**
- **LOCKING TORQUE**

HANDLING AND HARDWARE INSTALLATION

Each operation on FM Hardware shall be done wearing gloves and in according to the following instructions

All the integration activities shall be done by qualified personnel.

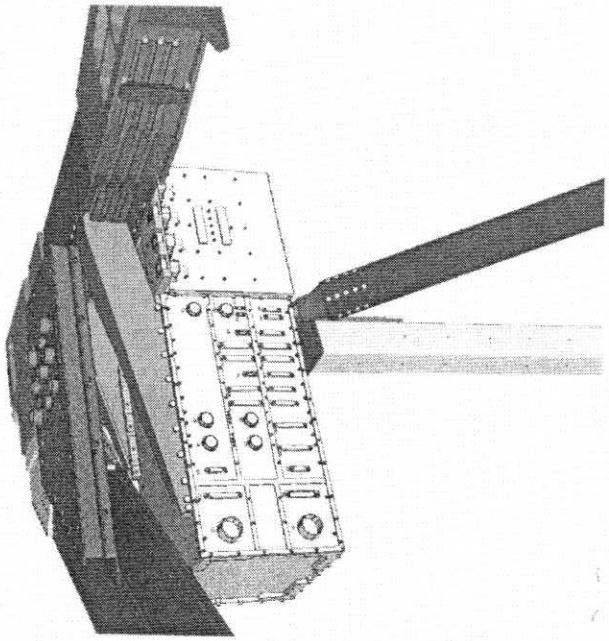
The AMS/CGS Project Engineer has the authority to work the steps in this ATS out of order.

All the handling procedure shall be carefully done.

WARNING

CAUTION is necessary in the parts and tools handling during the installation, in order to avoid damaging the surrounding hardware

AMS-02 TASK SHEET (ATS) CONTINUATION PAGE	4. ATS NO.	TCS080806-22
	6. MOD NO.	MOD 1

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
1.	**Open this ATS** **NOTE: The work being done in this ATS is performed on the USS-02 Assembly SEG39135724-301 SN 1001. In subsequent steps, this part will be referred to as "USS"**		
2.	**USS Surface Preparation Work** Perform the following preparatory work. All the below mentioned activities have to be carried out in the AMS02 Clean Room		
2.1	Before starting the integration of the flight hardware on the USS parts verify which hardware is installed in the relevant area: Hardware already installed on the USS: (YES) NO If there is hardware already installed then identify this hardware and check the applicable documentation is available (hardware ID, PN, ATS used during the integration,...). The following picture (only for reference) shows the H/W that might be mounted over the USS by the time of the present installation.  ONLY FOR REFERENCE	10/oct/08 MV	10/oct/08 CJ

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.	TCS080806-22
6. MOD NO.	MOD 1

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
	Note here below all the details necessary to identify the hardware already installed. USS H/W 1) CAB EBB (INSTALLED FOR FIT-CHECK) 2) IPA (TEMPORARY INSTALLED)		
2.2	As a baseline AMS Mechanical Integration Team is proposing to remove the CAB EM and the reinforce beams using the proper ATS. It is proposed to keep the IPA in place since it would not prevent from accessing the USS area where AGHP are to be installed. The final decision shall be taken at the AMS Integration site and properly documented in this ATS. All the identified H/W shall be removed by its relevant ATS/TPS. De-Install IPA as per TPS 2A0820065 Procedure start date 10-06-08 Procedure end date 10-06-08 Designated Verifier K. BOLLWEG De-Install CAB EMM as per AMS 02 task sheet (ATS) HITM0808013-9 Procedure start date 08-15-08 Designated Verifier C. GARCIA Procedure end date 10-06-08	10/06/08 MV	10/06/08 CF 10/06/08 CF
2.3	Rotate Rotation Assembly Stand (RAS) to make USS up-side-down according to Mechanical Integration Team procedure.	10/06/08 CF	10/06/08

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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
2.4	Perform an USS visual inspection in the AGHP installation area shown in AD[13].	10/06/08 MV	10/06/08 CF
2.5	Prepare the USS surface for the AGHP bonding.	10/06/08 MV	10/06/08 CF
2.6	Thoroughly degrease the cross-hatched area (according to the AD[13]) with Isopropyl Alcohol (IPA) to prevent driving contaminants into surface while abrading. Dry surface with clean lint free wipes or cloth.	10/06/08 MV	10/06/08 CF
2.7	Tape off the non cross-hatched area using white masking tape. Do not touch the cleaned cross-hatched area with bare hands or dirty gloves.	10/06/08 MV	10/06/08 CF
2.8	Mask off any other H/W remained in the area to prevent dust and debris.	10/06/08	10/06/08 CF
2.9	Remove the surface anodization treatment by means of the buffing wheel tool available at AMS clean room. Get rid of any particle and dust formation by means of a vacuum cleaner.	10/06/08 MV	10/06/08 CF
2.10	Wipe clean the surface using Isopropyl Alcohol (IPA)	10/06/08 MV	10/06/08 CF
2.11	Take pictures of the surface after the abrasion.	10/06/08 MV	10/06/08 CF
2.12	Protect the abraded area with a tape that doesn't leave any residue. This operation can be carried out in steps during the surface preparation.	10/06/08 MV	10/06/08 CF
3.	**AGHP Preparation Work**		
3.1	The AGHPs thermal hardware have to be removed carefully from the transport container and the visual inspection has to be performed. Record the humidity indicator status: NOT APPLICABLE Records any signs of damage: NONE	10/09/08 CJ	10/09/08 CF
3.2	Check the cleanliness of the parts to be installed. Clean the dirty parts with Isopropyl Alcohol (IPA) and dry them with a clean towel. Let than the parts dry on a clean towel.	10/09/08 CJ	10/09/08 CF
3.3	Prepare screws and washer to be used for the installation. Perform a screws, nuts and washers visual inspection. Clean screws, nuts and washers in an Isopropyl Alcohol bath and let the parts dry on a clean towel.	10/09/08 CJ	10/09/08 CF
3.4	Prepare the tools needed for the installation. All the tools have to be clean and free from dust and grease.	10/09/08 CJ	10/09/08 CF
3.5	Weight all the flight hardware to be installed, including fasteners. Record the weight in the following table:	10/09/08 CJ	10/09/08 CF

ITEM	WEIGHT [Kg]

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6. MOD NO.	MOD 1

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)		VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
	CAB USS AGHP – p/n IEF001-D-093 – 2 parts	2 X 0,214 Kg	10/05/08	10/05/08
	CAB USS AGHP – p/n IEF001-D-094 – 1 part	0,217 Kg		
	Retainers and Supports (only the permanent items)	PIPE BOTTOM SUPPORTS 182 0,013 Kg RETAINER 0,029 BOLTS & WASHERS 0,042		

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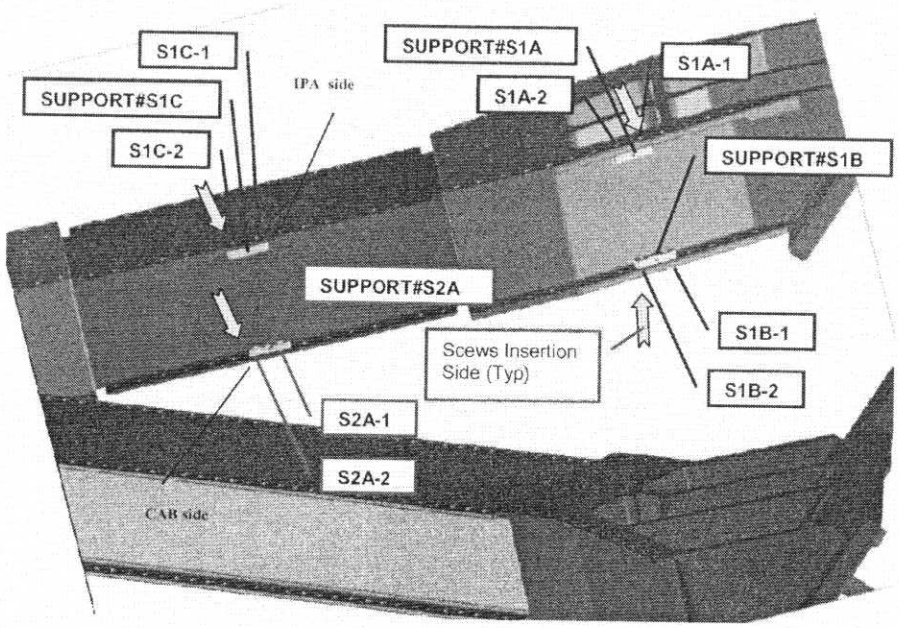
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
4.	**USS HEAT PIPES BOTTOM SUPPORTS INSTALLATION**	10/09/08	10/09/08
4.1	The USS heat pipes bottom supports ([AD 3] and [AD 4]) have to be positioned onto the USS beams as detailed on the engineering drawing [AD 13]. The supports identification is shown in the figure below. • SUPPORT#S1A [AD3] • SUPPORT#S1B [AD3] • SUPPORT#S1C [AD3] • SUPPORT#S2A [AD4]		



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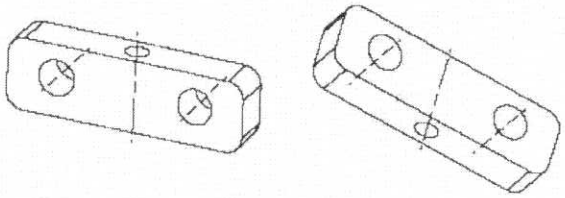
CONTINUATION PAGE

4. ATS NO.	TCS080806-22
6. MOD NO.	Mod 1

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
4.2	USS heat pipes bottom supports installation and Torque Setting	10/05/08	10/05/08

SUPPORT#S1A - Screws **NAS 1954C6** installation



3D OVERVIEWS (NO SCALE)

Install and fasten "by hand" the 2 screws NAS 1954C6 plus relative washers NAS 15874C
Record their lot number

N° 2 SCREWS NAS 1954C6 LOT# 36412

N° 2 WASHERS NAS 15874C LOT# T0650

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws S1A-1 and S1A-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws S1A-1 and S1A-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws S1A-1 and S1A-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
S1A-1	1.5	8.35 through 9,82	10.6
S1A-2	2.8	8.35 through 9,82	11.9

Torque Wrench data - (Locking Torque definition)

P/N 3125G2V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N BAHCO 120 D30 M# 67433 Cal. Due Date 20-NOV-2008

AMS-02 TASK SHEET (ATS) CONTINUATION PAGE	4. ATS NO.	TCS080806-22
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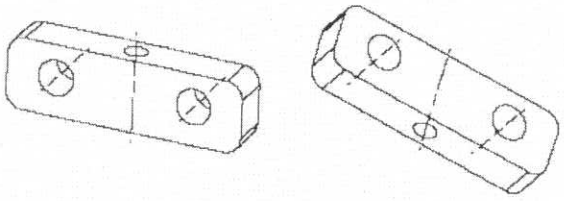
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
		10/05/08	10/05/08

SUPPORT#S1B - Screws **NAS 1954C6** installation



3D OVERVIEWS
(NO SCALE)

Install and fasten "by hand" the 2 screws NAS 1954C6 plus relative washers NAS 15874C
Record their lot number

N° 2 SCREWS NAS 1954C6 LOT# 36412

N° 2 WASHERS NAS 15874C LOT# T0650

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws S1B-1 and S1B-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws S1B-1 and S1B-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws S1B-1 and S1B-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
S1B-1	1.7	8.35 through 9,82	10.8
S1B-2	2.0	8.35 through 9,82	11.1

Torque Wrench data - (Locking Torque definition)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N BAHCO 120 D30 M# 67433 Cal. Due Date 20-NOV-2008

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CONTINUATION PAGE

4. ATS NO.	TCS080806-22
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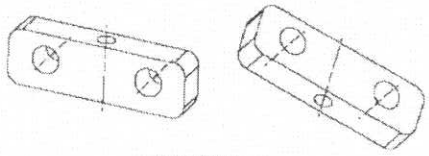
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV
		10/05/08	10/05/08

SUPPORT#S1C (IPA-side) - Screws **NAS 1954C3** installation



3D OVERVIEWS (NO SCALE)

Install and fasten "by hand" the 2 screws NAS 1954C3 plus relative washers NAS 15874C
Record their lot number

N° 2 SCREWS NAS 1954C3 LOT# 20715

N° 2 WASHERS NAS 15874C LOT# T0650

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws S1C-1 and S1C-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws S1C-1 and S1C-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws S1C-1 and S1C-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
S1C-1**	1	8.35 through 9,82	10.2
S1C-2	1	8.35 through 9,82	10.2

NOTE
****This screw is NOT the one foreseen in the flight design. This joint is shared with the Baroswitch electronics box and final screw/washer installation shall be carried out when the baroswitch box will be present. The current screw - NAS 1954C3 - shall be replaced by NAS 1954C6 (flight design screw) and the relative seating torque shall be derived by the corresponding shared bolt analysis. To be covered in the Baroswitch electronic box installation ATS.**

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	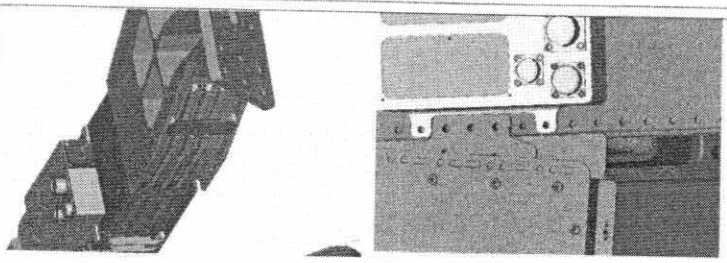	10/09/08	10/09/08

Torque Wrench data - (Locking Torque definition)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N BAHCO 120 D30 M# 67433 Cal. Due Date 20-NOV-2008

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		10/03/08	10/03/08

SUPPORT#S2A (CAB-side)- Screws **NAS 1954C9** installation

NOTE: The following instructions have been prepared under the assumption that the CAB EB shall be dismounted from USS.

Install and fasten "by hand" the 2 screws NAS 1954C9 plus relative washers NAS 15874C plus non-flight nuts to replace the missing CAB inserts.
Record their lot number

N° 2 SCREWS NAS 1954C9 LOT# 11437

N° 4 WASHERS NAS 15874C LOT# T0650

N° 2 NUTS NAS1291C4M LOT# R11L5

Define the Final Torque (T) of screws S2A-1 and S2A-2 and write the values in the below table.

By means of a calibrated torque wrench set the Final Torque (T) of screws S2A-1 and S2A-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
S2A-1**	1.0	8.35 through 9,82	10.1
S2A-2**	1.0	8.35 through 9,82	10.1

** **NOTE**
These screws are the same foreseen for the flight design. But the installation is not permanent since CAB unit is not in place and the CAB inserts are replaced by non-flight nuts provided by AMS MIteam. The final installation of these fasteners shall be covered by a dedicated ATS (down to AMS Integration Mechanical Team) and the relative seating torque shall be derived by the corresponding shared bolt analysis.

Torque Wrench data - (Locking Torque definition)

P/N 317362V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N BAHCO 120 D30 M# 67433 Cal. Due Date 20-NOV-2008

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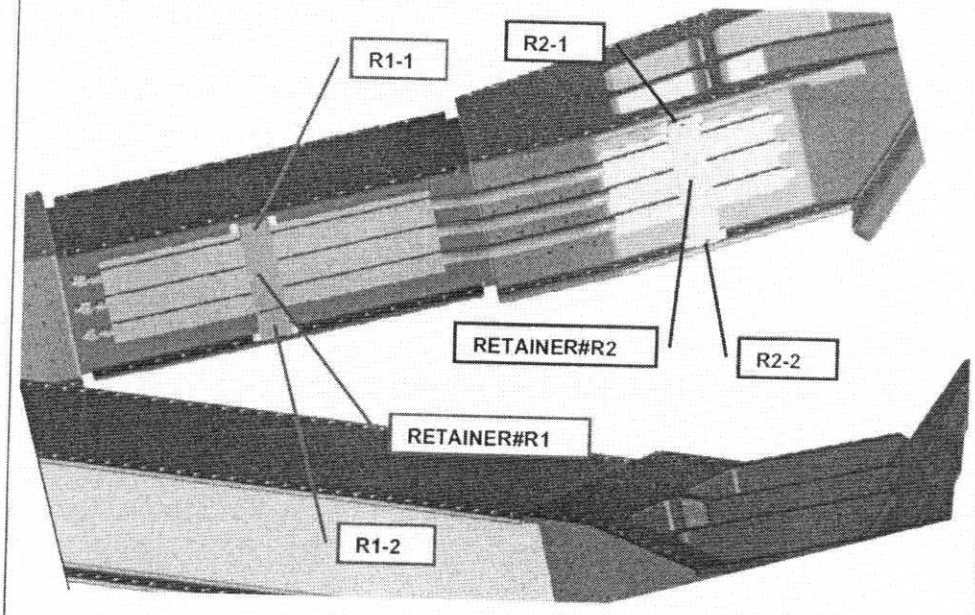
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
5.	**AGHP FIT-CHECK**		
5.1	The three AGHP's (AD[5],AD[6]) have to be positioned according to the engineering drawing (AD[13]). After positioning and before the heat pipe retainers installation, the AGHP's are kept in right position using Kapton tape and/or Teflon pads. This shall be decided during the installation.	10/09/08 QV	10/09/08 CF
5.2	Install the two retainers as shown in the below figure. For the installation sequences follow the instruction reported in the tables in chapter 5.2	10/09/08 QV	10/09/08 CF
5.3	Apply the following instructions for screw Installation and torque setting	10/09/08 QV	10/09/08 CF



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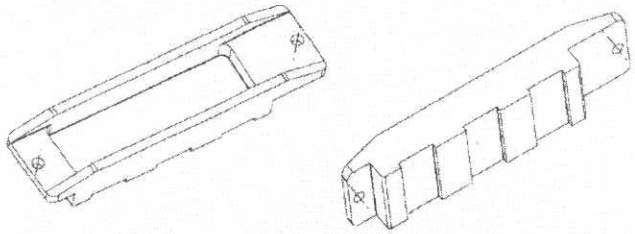
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
		10/09/08	10/09/08

RETAINER #R1 - Screws **NAS1352C08-10** fit-check



Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L
Record their lot number

N° 2 SCREWS NAS 1352C08-10 LOT# 78219

N° 2 WASHERS NAS 620 C8L LOT# 330385-18

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R1-1 and R1-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws R1-1 and R1-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws R1-1 and R1-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm] *	T (Final Torque-measured) [Nm]
R1-1	0.5	1,0 +-10%	1.5
R1-2	0.5	1,0 +-10%	1.5

* This is the torque to be applied for the fit-check.

Torque Wrench data - (Locking Torque definition)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

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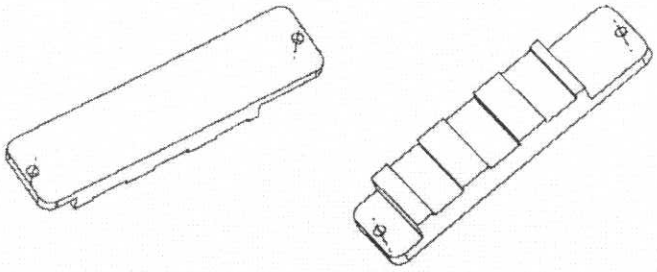
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
		10/09/08 QV	10/09/08 CJ

RETAINER #R2 - Screws **NAS1352C08-10** fit-check



Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L
Record their lot number

N° 2 SCREWS NAS 1352C08-10 LOT# 75218

N° 2 WASHERS NAS 620 C8L LOT# 330385-18

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R2-1 and R2-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws R2-1 and R2-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws R2-1 and R2-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
R2-1	0.5	1,0 +-10%	1.5
R2-2	0.5	1,0 +-10%	1.5

Torque Wrench data - (Locking Torque definition)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

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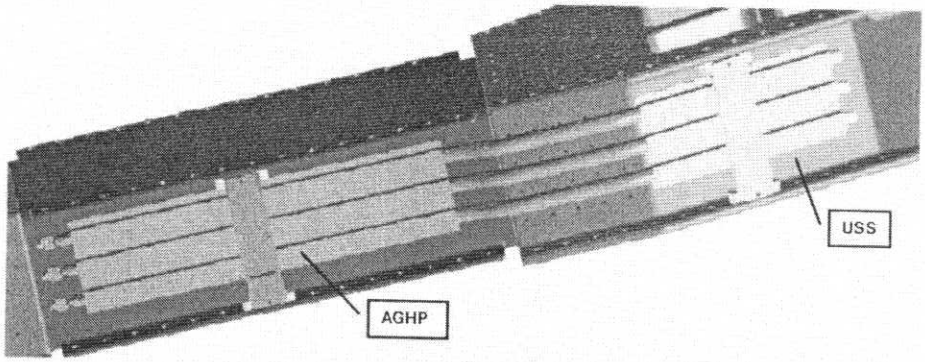
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
5.4	After completing the installation a visual inspection has to be carried out in order to check if significant gaps are present between USS and AGHPs all along the contact area.	10/05/08 QV	10/05/08 CF



Take pictures of the assembly done and write down any remark:

6. Heat Pipe dismounting and AGHP removal

6.1	After the fit check both retainers [AD1] and [AD2] and AGHP's AD[5],AD[6] shall be removed from the USS structure. All the removed parts have to be carefully handled.	10/05/08 QV	10/05/08 CF
6.2	All the removed parts have to be identified in order to be re-positioned in the same place during the final integration activity (AGHP's gluing).	10/05/08 QV	10/05/08 CF
6.3	After removing, in the following table fill the box "Parts Status" with the word "**REMOVED**"	10/05/08 QV	10/05/08 CF

PARTS	PARTS STATUS	REMARKS
Screw and Washer R1-1	REMOVED	
Screw and Washer R1-2	REMOVED	
Heat pipe Retainer R1	REMOVED	
Screw and Washer R2-1	REMOVED	
Screw and Washer R2-2	REMOVED	
Heat pipe Retainer R2	REMOVED	
AGHP 1 (s/n IEA 001/08)	REMOVED	
AGHP 2 (s/n IEA 002/08)	REMOVED	
AGHP 3 (s/n IEA 003/08)	REMOVED	

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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV
7.	**AGHP GLUING (with Adhesive ECCOBOND 285 Catalyst 23LV)**	SEE	MOD1
7.1	The AGHP gluing process shall be carried out - **as a base-line** - in three steps. Each AGHP shall be glued at a time and secure with the heat pipe retainers temporarily using non flight screws (i.e. shorter than the flight ones) to avoid the engagement of the locking device. In case the gluing process should result in being quicker than estimated and compatible with the glue pot-life the gluing of the three pipes shall be done in a single step and the change shall be tracked in a MOD.		
7.2	Remove the protective cover kapton tape from the center line of the two parts of the USS upper trunnion beam and Upper VC IF joint.		
7.3	Wipe clean the USS uncovered surface with Isopropyl Alcohol (IPA).		
7.4	Take the central AGHP – see AD[13] - and remove the kapton protective tape off the contact area of the flange.		
7.5	Wipe clean the AGHP flange surface with Isopropyl Alcohol (IPA).		
7.6	Prepare the epoxy paste adhesive for AGHP IEF001-D-093 bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.		
7.7	Apply a thin glue layer with a spatula onto the AGHP IEF001-D-093 at the contact flange surface.		
7.8	Apply a thin center line layer with a spatula on the uncovered prepared surface of the USS upper trunnion beam and VC IF joint.		
7.9	Position the AGHP IEF001-D-093 pipe onto the USS according to the AD[13].		
7.10	Keep the AGHP in position by hand and apply Kapton tape able to maintain the position wrt. the USS structure.		
7.11	Install the heat pipe retainers – both the flight and the temporary – using not flight screws to avoid the engagement of the locking device.		
7.12	Remove the Kapton tape.		
7.13	In addition to the heat pipe retainers, install additional clamps and the Teflon pads to distribute adequately the pressure all over the pipe length.		
7.14	Due to the heat pipe retainer and clamp installation some glue might squeeze out off the edge. Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge.		
7.15	Take pictures of the assembly.		
7.16	Wait for the lower limit of the curing time (i.e. 16 hours) described in AD [7].		
7.17	Remove the clamps and the heat pipe retainers		

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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV
7.18	Remove the protective cover kapton tape from the CAB side of the two parts of the USS upper trunnion beam and Upper VC IF joint.		
7.19	Wipe clean the USS uncovered surface with Isopropyl Alcohol (IPA).		
7.20	Take the AGHP IEF001-D-093 and remove the kapton protective tape off the contact area of the flange		
7.21	Wipe clean the AGHP flange surface with Isopropyl Alcohol (IPA).		
7.22	Prepare the epoxy paste adhesive for AGHP IEF001-D-093 bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.		
7.23	Apply a thin glue layer with a spatula onto the AGHP at the contact flange surface.		
7.24	Apply a thin line layer with a spatula on the uncovered prepared surface of the USS upper trunnion beam and VC IF joint.		
7.25	Position the AGHP onto the USS according to the AD[13].		
7.26	Keep AGHP in position by hand and apply Kapton tape able to maintain the position wrt. the USS structure.		
7.27	Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge.		
7.28	Install the heat pipe retainers – both the flight and the temporary – using not flight screws to avoid the engagement of the locking device.		
7.29	Remove the Kapton tape.		
7.30	In addition to the heat pipe retainers, install additional clamps and the Teflon pads to distribute adequately the pressure all over the pipe length.		
7.31	Due to the heat pipe retainer and clamp installation some glue might squeeze out off the edge. Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge.		
7.32	Take pictures of the assembly.		
7.33	Wait for the lower limit of the curing time (i.e. 16 hours) described in AD [7].		
7.34	Remove the clamps and the heat pipe retainers		
7.35	Remove the protective cover kapton tape from the IPA side of the two parts of the USS upper trunnion beam and Upper VC IF joint.		
7.36	Wipe clean the USS uncovered surface with Isopropyl Alcohol (IPA).		
7.37	Take the AGHP IEF001-D-094 and remove the kapton protective tape off the contact area of the flange		

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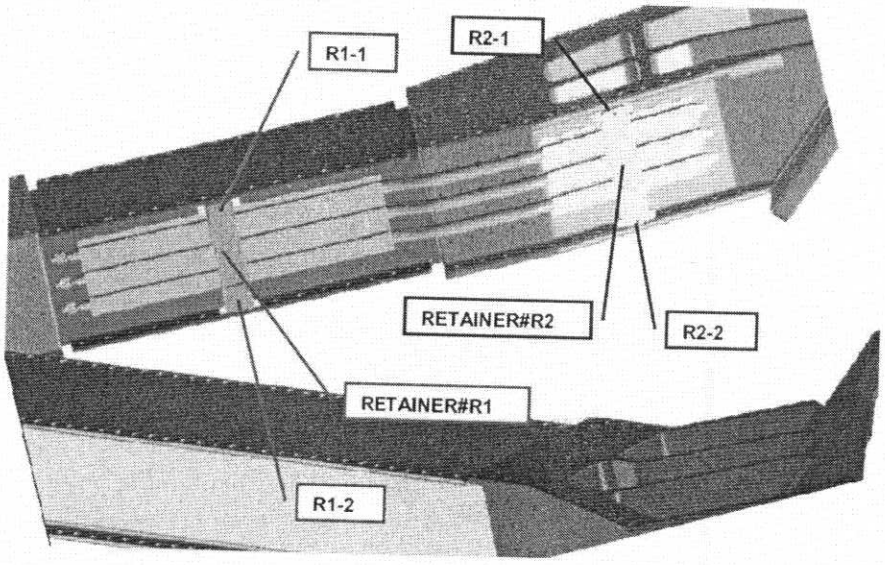
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV
7.38	Wipe clean the AGHP flange surface with Isopropyl Alcohol (IPA).		
7.39	Prepare the epoxy paste adhesive for AGHP bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.		
7.40	Apply a thin glue layer with a spatula onto the AGHP at the contact flange surface.		
7.41	Apply a thin line layer with a spatula on the uncovered prepared surface of the USS upper trunnion beam and VC IF joint.		
7.42	Position the AGHP pipe onto the USS according to the AD[13].		
7.43	Keep AGHP in position by hand and apply Kapton tape able to maintain the position wrt. the USS structure.		
7.44	Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge.		
7.45	Install the heat pipe retainers <u>using flight screws</u>		
7.46	All the heat pipe retainers have to be installed in the same position as done during the fit-check carried out at previous step.		



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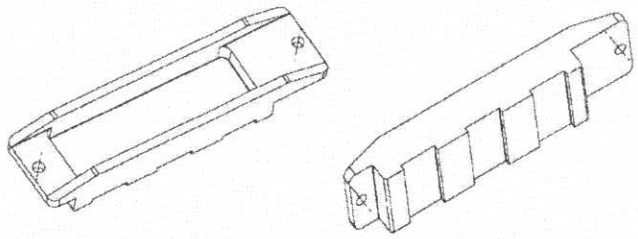
RETAINER #R1 - Installation



Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L
Record their lot number

N° 2 SCREWS NAS 11352C08-10 LOT#_____

N° 2 WASHERS NAS 620 C8L LOT#_____

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R1-1 and R1-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws R1-1 and R1-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws R1-1 and R1-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
R1-1		1.24 through 1,7	
R1-2		1.24 through 1,7	

Torque Wrench data - (Locking Torque definition)

P/N_____M#_____Cal. Due Date_____

Torque Wrench data - (Final Torque setting)

P/N_____M#_____Cal. Due Date_____

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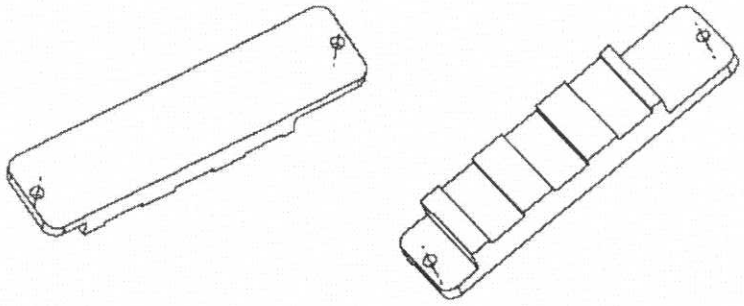
RETAINER #R2 - Installation



Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L
Record their lot number

N° 2 SCREWS NAS 11352C08-10 LOT#_____

N° 2 WASHERS NAS 620 C8L LOT#_____

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R2-1 and R2-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws R2-1 and R2-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws R2-1 and R2-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
R2-1		1.24 through 1,7	
R2-2		1.24 through 1,7	

Torque Wrench data - (Locking Torque definition)

P/N_____M#_____Cal. Due Date_____

Torque Wrench data - (Final Torque setting)

P/N_____M#_____Cal. Due Date_____

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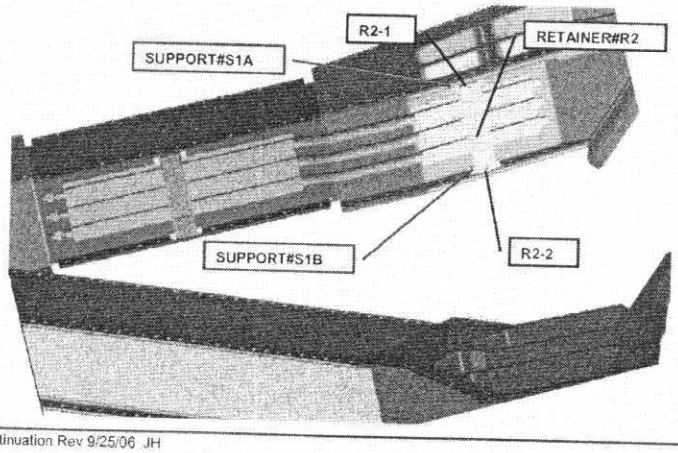
7.47	In addition to the heat pipe retainers, install additional clamps and the Teflon pads to distribute adequately the pressure all over the pipe length.		
7.48	Due to the heat pipe retainer and clamp installation some glue might squeeze out off the edge. Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge.		
7.49	Take pictures of the assembly.		
7.50	Wait for the upper limit of the curing time (i.e. 24 hours) described (AD[7]).		
7.51	When the curing is over and before the heat pipe temporary retainer removal, check if visible de-bonded areas are present. In presence of de-bonded areas a recovery action shall be carried out and it shall be managed by NCR.		
7.52	Take pictures of the assembly.		
8.	**Heat Pipe Temporary retainer removal**		
8.1	Remove the parts listed in the following table and fill-in the box "parts status" with the word REMOVED.	10/16/08	10/16/08
8.2	All the removed parts shall be bagged and labelled as "not for flight" items.	10/16/08	10/16/08

PARTS	PARTS STATUS	REMARKS
Screw and Washer R2-1	REMOVED	
Screw and Washer R2-2	REMOVED	
Retainer R2	REMOVED	
Screws and washers SUPPORT#S1A	REMOVED	
SUPPORT#S1A	REMOVED	
Screws and washesr SUPPORT#S1B	REMOVED	
SUPPORT#S1B	REMOVED	



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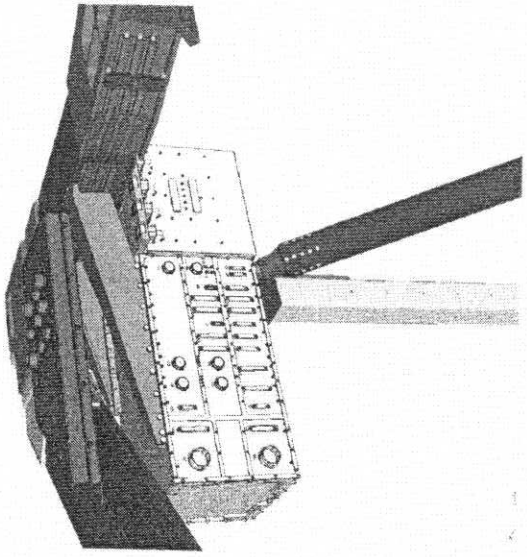
20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
8.3	After the heat pipe temporary retainer and bottom supports removal , check if visible de-bonded areas are present. Pull-out testing shall be carried out off-line on the samples done with the same batch of epoxy used for the pipe Installation.	10/16/08 QV	10/16/08 CF
8.4	Take pictures of the assembly.	10/16/08 QV	10/16/08 CF
8.5	Verify that no interference with the CAB long and short beams takes place.	10/16/08 QV	10/16/08 CF



At the AGHP FIT-CHECK THE GAPS MEASURED
BETWEEN LONG BEAM AND HP IS 0.8mm
SHORT BEAM AND HP IS 1.0 mm

THE GAPS ARE CONFIRMED AFTER THE GLUING PROCESS IS COMPLETED. 10/16/08 QV 10/16/08 CF

9. Close this ATS

1. PROJECT CODE	2. JPIC CODE	AMS-02 TASK SHEET (ATS)
SA-AMS	AMS	

3. TYPE				4. ATS NO.	5. PAGE
A	CONFIGURATION CHANGE	☒		TCS080806-22-MOD1	1 OF 5
	PERMANENT ☒ TEMPORARY ☐			6. MOD SHEET(S) NUMBER(S)	
B	NONCONFIGURATION CHANGE	☐			

10. PART NAME	11. Sub Detector Name	12. SERIAL/LOT NO.
AMS02 USS parts		

14. APPLICABLE DOCUMENTS

16. ATS TITLE
USS AGHP INTEGRATION ONTO AMS02

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV
1.	**Open this MOD**		
2.	**The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.**		
2.1	Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.	10/15/08 CV	10/15/08 CF
2.2	Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).	10/15/08 CV	10/15/08 CF
2.3	Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.	10/15/08 CV	10/15/08 CF
2.4	Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.	10/15/08 CV	10/15/08 CF
2.5	Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).	10/15/08 CV	10/15/08 CF
2.6	Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	10/15/08 CV	10/15/08 CF
2.7	Apply a thin glue layer with a roller onto the AGHP IEF001-D-093 at the contact flange surface.	10/15/08 CV	10/15/08 CF

24. ORIGINATOR	DATE	25. FINAL ACCEPTANCE STAMP AND DATE
C.Vettore CV		

APPROVALS (Printed or Typed and Signed)

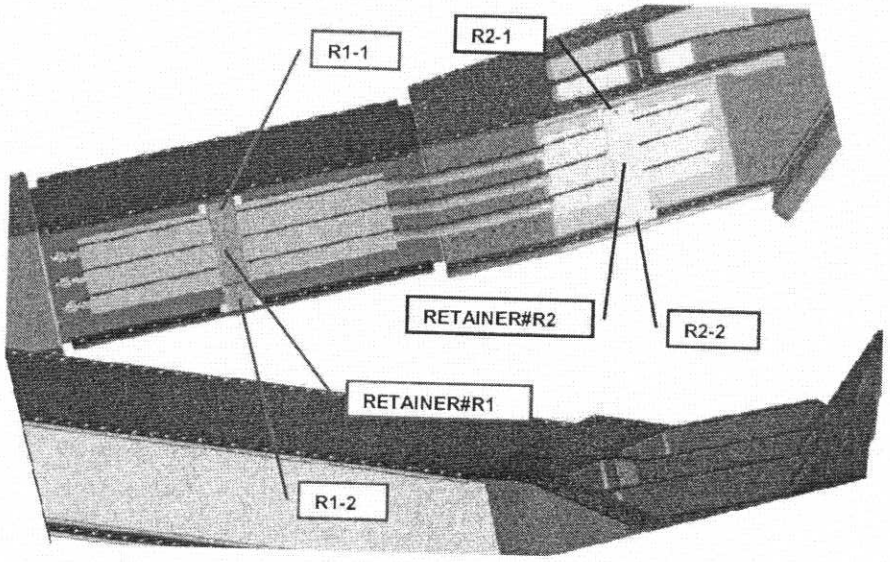
26. PROJECT ENGINEER	DATE	27. QUALITY ENGINEER	DATE
C.Vettore CV		C.Gargiulo CF	
28.		29.	
30.		31.	

AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO. TCS080806-22-MOD1

6. MOD NO.

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
2.8	Apply a thin line layer with a spatula on the relevant uncovered prepared surface of the USS upper trunnion beam and VC IF joint where the former AGHP has to be placed.	10/15/08 CV	10/15/08 CF
2.9	Position the AGHP IEF001-D-093 pipe onto the USS according to the AD[13].	10/15/08 CV	10/15/08 CF
2.10	Take pictures of the assembly.	10/15/08 CV	10/15/08 CF
2.11	Apply a thin glue layer with a roller onto the AGHP IEF001-D-093 at the contact flange surface.	10/15/08 CV	10/15/08 CF
2.12	Apply a thin line layer with a spatula on the relevant uncovered prepared surface of the USS upper trunnion beam and VC IF joint where the former AGHP has to be placed.	10/15/08 CV	10/15/08 CF
2.13	Position the AGHP IEF001-D-093 pipe onto the USS according to the AD[13]	10/15/08 CV	10/15/08 CF
2.14	Take pictures of the assembly.	10/15/08 CV	10/15/08 CF
2.15	Apply a thin glue layer with a roller onto the AGHP IEF001-D-094 at the contact flange surface.	10/15/08 CV	10/15/08 CF
2.16	Apply a thin line layer with a spatula on the relevant uncovered prepared surface of the USS upper trunnion beam and VC IF joint where the AGHP has to be placed.	10/15/08 CV	10/15/08 CF
2.17	Position the AGHP IEF001-D-094 pipe onto the USS according to the AD[13]	10/15/08 CV	10/15/08 CF
2.18	Install the heat pipe retainers <u>using flight screws</u>	10/15/08 CV	10/15/08 CF
2.19	All the heat pipe retainers have to be installed in the same position as done during the fit-check carried out at previous step.	10/15/08 CV	10/15/08 CF

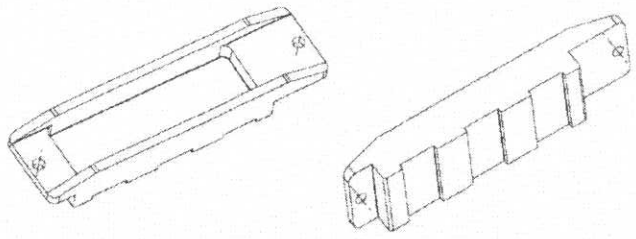


AMS-02 TASK SHEET (ATS)
CONTINUATION PAGE

4. ATS NO.	TCS080806-22-MOD1
6. MOD NO.	

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	23. QA/DV
		10/15/08	10/15/08

RETAINER #R1 - Installation



Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L
Record their lot number

N° 2 SCREWS NAS 11352C08-10 LOT# 79218

N° 2 WASHERS NAS 620 C8L LOT# 330385-18

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R1-1 and R1-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws R1-1 and R1-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws R1-1 and R1-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
R1-1	0.5	1.24 through 1,7	2.0
R1-2	0.5	1.24 through 1,7	2.0

Torque Wrench data - (Locking Torque definition)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N 317962V M# 78380 Cal. Due Date 15-MARCH-2008

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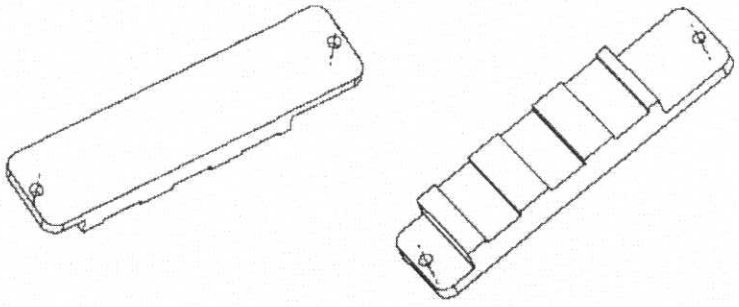
	6. MOD NO.	

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
		10/15/08	10/15/08

RETAINER #R2 - Installation



Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L
Record their lot number

N° 2 SCREWS NAS 11352C08-10 LOT# 78219

N° 2 WASHERS NAS 620 C8L LOT# 330385-18

By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R2-1 and R2-2 and write the values in the below table
The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS

Define the Final Torque (T) of screws R2-1 and R2-2 and write the values in the below table.

TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)

By means of a calibrated torque wrench set the Final Torque (T) of screws R2-1 and R2-2 according to the values reported in the below table.

Screw N°	LT (Locking Torque) [Nm]	ST (Seating Torque) [Nm]	T (Final Torque-measured) [Nm]
R2-1	0.5	1.24 through 1,7	2.0
R2-2	0.5	1.24 through 1,7	2.0

Torque Wrench data - (Locking Torque definition)

P/N 317862V M# 78380 Cal. Due Date 15-MARCH-2008

Torque Wrench data - (Final Torque setting)

P/N 317862V M# 78380 Cal. Due Date 15-MARCH-2008

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4. ATS NO.	TCS080806-22-MOD1
6. MOD NO.	

20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)	VERIFICATION 22. TECH	VERIFICATION 23. QA/DV
2.20	In addition to the heat pipe retainers, install additional weights to distribute properly the pressure all over the pipe length.	10/15/08	10/15/08
2.21	Due to the heat pipe retainer and additional weights some glue might squeeze out off the edge. Check the meniscus all over the edge of the AGHPs contact flanges and adjust it in order to have an excess of glue not more than 1mm off the flanges edge.	15:30 10/15/08	10/15/08
2.22	Take pictures of the assembly.	10/15/08	10/15/08
2.23	Wait for the upper limit of the curing time (i.e. 24 hours) described (AD[7]).	10/15/08	10/15/08
2.24	When the curing is over and before the heat pipe temporary retainer removal, check if visible de-bonded areas are present. In presence of de-bonded areas a recovery action shall be carried out and it shall be managed by NCR.	17:00 10/16/08	10/16/08
2.25	Take pictures of the assembly.	10/16/08	10/16/08
3.	**Close this MOD**		

CARLO GAVAZZI SPACE	**THERMAL HARDWARE**

ADHESIVE MIXTURE RECORD	**No.** (JJ / MM / DD / No.): / / /

Adhesive (Part A):	**ECCOBOND 285**	Color:	Black paste
Adhesive (Part B):	**Catalyst 23 LV**	Color:	LOW COLOR
~~AAE-Ref. (Part A):~~	~~Colli:~~	~~EoL:~~	
~~AAE-Ref. (Part B):~~	~~Colli:~~ "	~~EoL:~~	"
Project Code:	AMS02	Reference Doc.:	AMSTCS-PR-CGS-019
Mixture Ratio (by weight):	Part A : Part B = 100 : 7.3		
Used balance (IDNr.):	; next cal.: /		
Part **A**: **nominal**	100 g	**actual:**	100 g
Part **B**: **nominal:**	7,3 g	**actual:**	7,3 g
Environment: Cleanroom ☒ / Non-Cleanroom ☐ Temp.:	° C / Humidity:	% r. H.	
Time / Start: 14^{45} 10/15/2008	**Homogeneity of mixture:** ☒		
Time of Last Bonding: 15^{30} 10/15/2008	Pot Life: max. 60 min. ☒		
Minimum Cure Time at room-temperature:	16 h		
Cure-Time before Loading (Cure at 25° C):	24 h		

Bonding Samples: prepared according to procedure ☒ AMSTCS-PR-CGS-019
Structure samples available ☒ alternative Aluminium ☐
Samples marked with Proj. Code, Record No. and Sample-Serial No.: **performed by**

Bonded Items (ref. to General Arrangement):

Remarks:	LOT NUMBER	EXPIRATION DATE
EC285	# 42171	07/08/2009
CATALYST 23LV	# 42453	07/14/2009

Location: CERN / CLEAN ROOM	Performed by: